SANTA CRUZ BIOTECHNOLOGY, INC.

BCMO1 siRNA (m): sc-141677

BACKGROUND

Vitamin A and its derivatives (retinoids) play a critical role in various processes including vision, cell differentiation, embryonic development and normal physiological functions in children and adults. Vitamin A is also important for cell membrane and skin protection. BCMO1 (β-carotene 15,15'-monooxygenase 1), also known as β-carotene dioxygenase 1 (BCDO1) BCO, BCDO, BCMO or BCO1, is a 547 amino acid cytoplasmic enzyme essential for β-carotene metabolism to vitamin A, which catalyzes the cleavage of β-carotene at its 15,15'-double bond to form two molecules of retinal. Belonging to the carotenoid oxygenase family, BCMO1 is highly expressed in retinal pigment epithelium (RPE) and is also found in testis, kidney, liver, small intestine, colon and brain. The gene encoding BCMO1 maps to human chromosome 16q23.2, and defects in BCMO1 are known to cause autosomal dominant hypercarotenemia and vitamin A deficiency.

REFERENCES

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2. Wyss, A., et al. 2000. Cloning and expression of β,β-carotene 15,15'-dioxygenase. Biochem. Biophys. Res. Commun. 271: 334-336.
3. von Lintig, J. and Vogt, K. 2000. Filling the gap in vitamin A research. Molecular identification of an enzyme cleaving β-carotene to retinal. J. Biol. Chem. 275: 11915-11920.
4. Yan, W., et al. 2001. Cloning and characterization of a human β,β-carotene-15,15'-dioxygenase that is highly expressed in the retinal pigment epithelium. Genomics 72: 193-202.
5. Gong, X., et al. 2006. Cooperation between MEF-2 and PPARγ in human intestinal β,β-carotene 15,15'-monooxygenase gene expression. BMC Mol. Biol. 7: 7.
6. Lindqvist, A., et al. 2007. Loss-of-function mutation in carotenoid 15,15'-monooxygenase identified in a patient with hypercarotenemia and hypovitaminosis A. J. Nutr. 137: 2346-2350.
7. Ferrucci, L., et al. 2009. Common variation in the beta-carotene 15,15'-monooxygenase 1 gene affects circulating levels of carotenoids: a genome-wide association study. Am. J. Hum. Genet. 84: 123-133.

CHROMOSOMAL LOCATION

Genetic locus: Bcmo1 (mouse) mapping to 8 E1.

PRODUCT

BCMO1 siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see BCMO1 shRNA Plasmid (m): sc-141677-SH and BCMO1 shRNA (m) Lentiviral Particles: sc-141677-V as alternate gene silencing products.

For independent verification of BCMO1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-141677A, sc-141677B and sc-141677C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

BCMO1 siRNA (m) is recommended for the inhibition of BCMO1 expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor BCMO1 gene expression knockdown using RT-PCR Primer: BCMO1 (m)-PR: sc-141677-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.